

QUALITEST
ADVANCED TESTING TECHNOLOGIES



QUALITEST™

SEMI AUTOMATIC VISION MEASURING MACHINE (VMM)



STANDARDS

ISO 10360-7

ISO 14253-1

ISO 14978

Semi Automatic Vision Measuring Machine (VMM) - QualiVMM™ Semi 300 Series

Vision Measuring Machine (VMM) workflows often slow down when focusing depends on the operator. QualiVMM™ Semi 300 Series uses a servo-driven Z-axis with automatic focusing to reduce human focus variation and keep measurement results consistent across shifts. The platform combines a granite structure, controlled LED illumination, and iMeasuring software for practical QC measurement routines.

QualiVMM™ Semi 300 Series is a semi-automatic video measuring system built around the 300 × 200 mm travel class, with automatic focusing on the Z-axis for faster, more repeatable inspections. It is designed for 2D and 2.5D vision measurement, with upgrade paths that can add contact probing and 3D measurement software when needed.

The system uses a zoom lens and a high-resolution color digital camera to support clear viewing for edge-based measurement. Programmable, zone-controlled LED lighting helps manage contrast across different materials and surface finishes.

APPLICATIONS

Semi Automatic Vision Measuring Machine (VMM) - QualiVMM™ Semi 300 Series Applications

- Production QC for machined parts
 - Measures profiles, hole locations, radii, chamfers, and feature-to-feature distances with reduced operator focus variation. Auto focusing helps keep results steady when multiple inspectors share the same station.
- Stamping and laser-cut component inspection
 - Supports fast outline and pattern verification for flat parts, especially when lighting control is needed to define edges on reflective surfaces. Multi-zone surface lighting plus contour lighting helps improve edge visibility.
- Plastic and molded component checks
 - Helps verify openings, slots, ribs, and small geometry without applying contact force that can deform softer materials. Autofocus also reduces time spent adjusting focus on parts with height variation.
- Electronics and precision hardware
 - Useful for connectors, small fixtures, and precision assemblies where clean imaging and repeatable focus support consistent measurement routines. Optical zoom supports both overview checks and feature-level inspection.
- Upgrading to touch-probe measurements
 - When vision alone is not enough, optional contact probe and 3D measurement software can upgrade the system toward contact-based 3D measurement tasks.



Standards

- ISO 10360-7 (acceptance and reverification tests for Cartesian CMMs using imaging probing systems) supports performance testing concepts for vision-based measurement systems.
- ISO 14253-1 (decision rules for proving conformity or nonconformity) helps define how to make pass or fail decisions when measurement uncertainty matters.
- ISO 14978 (general concepts and requirements for GPS measuring equipment) is often used as a metrology framework for measuring equipment requirements and calibration thinking.
- ASME B89.4.1 (methods for performance evaluation of coordinate measuring machines) is a widely recognized US reference for CMM performance evaluation concepts.

FEATURES

Semi Automatic Vision Measuring Machine (VMM) - QualiVMM™ Semi 300 Series Key Features

- Semi-automatic Z-axis with autofocus
 - High-precision linear guides and a servo motor control system support automatic focusing, which reduces operator focusing variation and helps stabilize measurement results.
- Granite base and column for stable measurement conditions
 - The granite structure supports consistent performance in daily QC work.
- Worktable return control for repeatable positioning
 - A polished rod and quick locking approach is used to keep table re.
- High-precision scale and worktable design
 - The platform is specified to support measurement accuracy target $200 \mu\text{m}$ and $E1z = 5 + L/200 \mu\text{m}$.
- Clear imaging for reliable edge measurement
 - Zoom optics and a high-resolution color digitr viewing with low image distortion.

- Programmable, zone-controlled LED illumination
 - Surface lighting uses a 4-ring, 8-zone design with ad zone, combined with contour LED parallel illumination. Coaxial light is available as an option.
- Upgradeable to probing and 3D measurement
 - Contact probe and 3D measurement software can expand capability beyond vision-only measurement.

TECHNICAL SPECIFICATIONS

Semi Automatic Vision Measuring Machine (VMM) - QualiVMM™ Semi 300 Series Technical Specification

Specification	Value
Category	Semi-Automatic Video Measuring System (VMS Series)
Model	QualiVMM™ Semi 300 Series
Marble workbench	505 × 350 mm
Glass stage	356 × 248 mm
X/Y travel	300 × 200 mm
Z travel	High-precision linear guide, effective travel 200 mm
Axis resolution (X/Y/Z)	0.5 μm
Base and column	High-precision granite
Accuracy (E1x,y)*	3 + L/200 (μm)
Accuracy (E1z)*	5 + L/200 (μm)

Specification	Value
Repeatability	2 μm
Illumination (software-controlled)	4-ring / 8-zone LED cold surface illumination; contour LED parallel illumination; optional coaxial light
Digital camera	1/3" high-resolution color camera, 1.3 Mpixel
Zoom lens	6.5 \times high-resolution zoom lens
Magnification	Optical: 0.7 \times -4.5 \times ; Video: 26 \times -172 \times (21.5" monitor)
Measuring software	iMeasuring
Supported OS	Windows 10/11 (32/64-bit)
Languages	English, Simplified Chinese, Traditional Chinese (other languages optional)
Operating environment	20°C \pm 2°C; temp change <1°C/hr; 30-80% RH; vibration <0.02 g; \leq 15 Hz
Voltage	AC 220V / 50Hz or 110V / 60Hz
Dimensions (W \times D \times H)	744 \times 643 \times 1075 mm
Weight (gross / net)	275 / 208 kg

* **Note:** L = measured length (mm). Accuracy is expressed using the manufacturer's formula in μm .

Configuration Overview

Product Categories and Sensor Configurations

Product Category	Sensor Configuration	Description	Model
Manual Video Measuring System	2D	2D Video Measuring System	QualiVMM™ Semi 300 Series
Manual Video Measuring System	2.5D	2.5D Video Measuring System	QualiVMM™ Semi 300A Series

Product Category	Sensor Configuration	Description	Model
Manual Video Measuring System	3D	3D Contact & Video Measuring System	QualiVMM™ Semi 300B Series
Semi-Auto Video Measuring System	2.5D	2.5D Semi-Automatic Video Measuring System	QualiVMM™ Semi 300C Series
Semi-Auto Video Measuring System	3D	3D Semi-Automatic Contact & Video Measuring System	QualiVMM™ Semi 300D Series

Model Versions - Features by Type

Model	Type	Primary Sensor Setup	Z-Axis Autofocus	Contact Probe	Software Version	Operation Mode
QualiVMM™ Semi 300 Series	—	Optical zoom-lens sensor	No	No	iMeasuring 2.0	Manual
QualiVMM™ Semi 300A Series	A	Optical zoom-lens sensor	No	No	iMeasuring 2.1	Manual
QualiVMM™ Semi 300B Series	B	Zoom-lens sensor + contact probe sensor	No	Yes	iMeasuring 3.1	Manual
QualiVMM™ Semi 300C Series	C	Zoom-lens sensor + Z-axis autofocus	Yes	No	iMeasuring 2.2	Semi-auto
QualiVMM™ Semi 300D Series	D	Zoom-lens sensor + contact probe + autofocus	Yes	Yes	iMeasuring 3.2	Semi-auto



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Qualitest USA (Corporate Sales Office)

Toll-Free: 1.877.884.TEST (8378) | Fax: 954.697.8211
E-mail: info@qualitest-inc.com
Address: 8201 Peters Rd., #1000,
Plantation, FL 33324, USA.

Qualitest Canada & International

Tel: +1.905.944.9825 | Fax: +1.905.944.0304
E-mail: sales@qualitest-inc.com
Address: 70 East Beaver Creek Rd., #9, Richmond Hill,
Ontario L4B 3B2, Canada.

Qualitest Latin America (Mexico and LATAM Region)

E-mail: ventas@qualitest-inc.com

Qualitest KSA (Regional Office)

Tel: +966 11 500 6659
Address: Level 7, 3.09, District 3, King Abdullah
Financial District, Riyadh, Saudi Arabia

Qualitest Singapore (ASIA PACIFIC Regional Office)

Tel: +65 6393 5480 | E-mail: singapore@qualitest-inc.com
Address: 50 Raffles Place, Singapore Land Tower,
Level 46, Singapore, 048623.

Qualitest Indonesia (Representative Office)

Tel: +62 21 2985 9522 | Fax: +62 21 2985 9889
E-mail: indonesia@qualitest-inc.com
Address: One Pacific Place Level 11, Jl. Jend. Sudirman,
Kav. 52-53, SCBD Area, Jakarta 12190, Indonesia.

Qualitest FZE (Regional GCC/ME Office)

Tel: +971 4 8819252 | Fax: +971 4 8819262
Email: gcc@qualitest-inc.com
Address: Jafza One, BB 1610, Jebel Ali Free Zone,
PO Box 261440, Dubai, UAE.

Qualitest India

E-mail: india@qualitest-inc.com
Address: 15th Floor, Dev Corpora, Pokhran Road No.1,
Eastern Express Highway, Thane, Maharashtra,
Mumbai, 400601, India

